VOYTOVICH, Ya. V., PONOMAREV, P. M., TRUBACHEV, I. N., GITEL'ZON, I. I., and TERSKOV, I. A., Institute of Biophysics, Siberian Department, Academy of Sciences USSR, Krasnoyarsk

"Gas and Water Balance in a Regenerative Life-Support System Using Hydrogen-Oxidizing Bacteria"

Abstract: Hydrogen-oxidizing bacteria can perform 3 functions that warrant their consideration as regenerative agents in a spacecraft life-support system: (a) utilization of carbon dioxide exhaled by man, regeneration of oxygen by electrolysis of water synthesized in the course of human and bacterial oxidation, and liberation of hydrogen needed for the bacterial life processes; (b) regeneration of water from human liquid wastes; (c) regeneration of proteins in the cosmonaut's diet. This report summarizes the results of a study of the growth, gas exchange, and biochemical composition of Hydrogenomonas eutropha grown in a continuous flow-type culture. The data suggest that a life-support system can be based on the use of chemosynthesis of H_2 bacteria and electrolysis.
1/1

USSR

UDC 531.717.11

CHERNYAKOVA, M. M., VOYTSEKHOV, YU. R.

"Instrument for Quality Control of Conducting and Semiconductor Coatings"

USSR Author's Certificate No 306337, filed 4 Jan 70, published 13 Aug 71 (from RZh--Avtomatika, Telemekhanika i vychislitel'naya tekhnika, No 4, Apr 72, Abstract No 4A551P)

Translation: A device is proposed for quality control of conducting and semi-conductor coatings containing a white light source and a shield between which a vessel is placed with a frosted inside surface filled with liquid in which the monitored part is located. The coefficients of refraction for a defined wavelength of the light spectrum of the liquid and the material of the vessel in the temperature range coincide. In order to simplify the instrument design and increase the monitoring efficiency, the instrument is equipped with two beveled mirrors -- one outside reflecting and one inside semitransparent -- which surround the vessel with the monitored part, the axes of symmetry of which coincide with the axis of the vessel, and the geometric apexes are turned toward the opposite ends of the vessel. There is 1 illustration.

1/1

USSR   UDC: 621.7.08

CHERNYAKOVA, M. M., VOYTSEKHOV, Yu. R.

"A Device for Quality Control of Metal and Semiconductor Coatings"

Translation: This Author's Certificate introduces a device for quality
control of metal and semiconductor coatings. The device contains a unit
for visualizing a heat field and a mechanical scanning system. As a dis-
tinguishing feature of the patent, in order to simplify the design of the
device and the process of checking for flaws in coatings, the instrument
contains a liquid-filled vessel with a matte inner surface in which a com-
ponent such as a resistor which is to be inspected is placed. The device
also includes a source of white light, the material of the vessel and the
liquid being selected so that their indices of refraction coincide at each
temperature in a certain interval such as the working temperature range of
a resistor for a unique wavelength of the white light spectrum which varies
uniquely with temperature.

1/2

USSR

CHERNYAKOVA, M. M., VOYTSEKHOV, Yu. R., USSR Author's Certificate No 332141

2/2
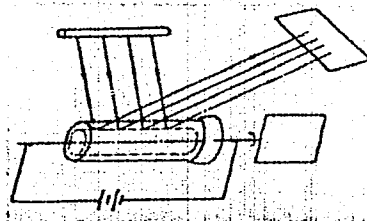
USSR

OGORODNICHUK, V. I., and VOYTSEKHOVICH, R. I.

"Preparation of Lead Anodes"

Translation: The manufacturing of Pb anodes is patented. The PbO_2 layer is deposited on anode surface from an aqueous solution of H_2SO_4 and K. The plating solution contains $KMnO_4$ 30-60, H_2SO_4 10-20 g/liter and the process is carried out at 80-100°C with a constant mixing by compressed air.

1/1

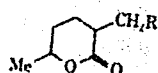110730g Substituted lactones and their reactions. XV. Formation of α-alkyl-δ-methyl-δ-valerolactones from cyanoethyl-alkylacetoacetic esters. Voitsekhovskaya, A. L.; Rudoi'fi, T. A.; Dashunin, V. M. (Vses. Nauch.-Issled. Inst. Sin. Natur. Dushistykh. Veshchestv., Vorontsovo, USSR). Zh. Org. Khim. 1970, 6(2), 379–81 (Russ). The hydrolysis of MeCOC(CH$_2$CH$_2$-CN)(CH$_2$R)CO$_2$Et (R is Pr, Bu, amyl, or hexyl) gave MeCOCH-(CH$_2$R)CH$_2$CH$_2$CO$_2$H (I) and MeCOCH$_2$CH$_2$CH(CH$_2$R)CO$_2$H (Ia). The redn. of I–Ia mixt. with Ni/H$_2$ gave 2 isomeric lactones, sepd. by gas chromatog., which on the basis of ir spectra were assigned. α-Substituted valerolactone (II) or γ-substituted-

valerolactone structures (IIa). Each lactone consists of cis and trans isomers. Refluxing I or Ia in Ac$_2$O gave the γ-unsatd. II and IIa analogs, which were also reduced to II and IIa with NiH$_2$.
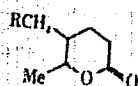
CPJR

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USSR

VOYTSEKHOVSKAYA, S. A.

UDC: 551.596+534-143

"Statistical Characteristics of an Acoustical Field Arising in a Liquid as a Result of the Formation of Breaks in an Ice Cover"

Moscow, V sb. Tezisy dokl. 3-y Vses. shkoly—seminara po stat. gidroakustike, 1971 (Theses of Reports, Third All-Union School—Seminar on Statistical Hydroacoustics, 1971—collection of works) 1972, pp 328-334 (from RZh—Fizika, No 4, 1973, Abstract No 4Zh649)

Translation: The computation of the acoustical field arising in a liquid as the result of the formation of breaks in an ice cover under the action of bending oscillations is considered for the case in which the natural bending oscillations of the ice cover are a stationary random process, in the broad sense. Expressions are obtained for the basic statistical characteristics of the process -- the mathematical expectation, the dispersion, and correlation functions of the space and surface wave field. The correlation functions and the dispersion of the acoustical field of the breaks in the liquid can be computed for a known energy spectrum of the bending oscillations of the ice cover caused by the breaks, in addition to the distribution of these breaks on the surface of the ice cover and in time. Yu. Zh.

1/1

- 4 -

USSR

UDC 551.596;534-143

VOYTSEKHOVSKAYA S. L., KAYDANOV, YU. L., SAPRYKIN, V. A.

"Problem of Representing Fields by the Sampling Method"

Tr. 2-y Vses. shkoly-seminara po stat. gidroakustike (SG-2) (Works of the Second All-Union Seminar on Statistical Hydroacoustics (SG-2)), Novosibirsk, Nauka, 1971, pp 32-52 (from RZh-Fizika, No 12, Dec 72, Abstract No 12Zh613)

Translation: The representation of hydroacoustic fields given in multidimensional spaces by the sampling method is, in practice, a problem which is difficult to realize. The authors obtained a representation by the sampling method of some classes of fields, including the field having axial symmetry. The field spectrum is given by a finite function with a medium in the form of an n-dimensional step with its center at the coordinate origin. A study was made of the general case in which the field spectrum is represented in the form of a quadratic function and also the case of applying the results obtained to represent fields permitting approximation of the spectrum in the form of a quadratic function. The authors present an example of representating the correlation function of the field and also evaluating the errors in representing the field by the sampling method.

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1/2   064

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--SPIN DETONATION NATURE OF THE TANGENTIAL HIGH FREQUENCY VIBRATIONS IN LIQUID ROCKET ENGINE COMBUSTION CHAMBERS -U-

AUTHOR-(04)-ARKOV, O.F., VOYTSEKHOVSKIY, B.V., MITROFANOV, V.V., TOPCHIIAN, M.E.

COUNTRY OF INFO--USSR

SOURCE--PMTF ZHURNAL PRIKLADNOI MEKHANIKI I TEKHNICHESKOI FIZIKI, JAN.-FEB. 1970, P. 155-157

DATE PUBLISHED-------70

SUBJECT AREAS--ORDNANCE, PROPULSION AND FUELS

TOPIC TAGS--COMBUSTION INSTABILITY, COMBUSTION CHAMBER, ROCKET ENGINE, LIQUID PROPELLANT, SPINNING DETONATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1549

STEP NO--UR/0207/70/000/000/0155/0157

CIRC ACCESSION NO--AP0118532

UNCLASSIFIED

2/2   064   UNCLASSIFIED   PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0118532
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COMPARISON OF THE MAIN FEATURES OF
A HIGH FREQUENCY INSTABILITY OBSERVED IN THE COMBUSTION CHAMBERS OF
LIQUID ROCKET ENGINES WITH THE FEATURES OF A SPIN DETONATION. IT IS
SHOWN THAT THE CONDITIONS CREATED NEAR THE ATOMIZERS OF A LIQUID ROCKET
ENGINE ARE THE SAME AS THOSE OCCURRING BEHIND THE LEADING EDGE IN A SPIN
DETONATION. IT IS CONCLUDED THAT THE OBSERVED HIGH FREQUENCY
INSTABILITY IS A SPIN DETONATION UNDER THE SPECIFIC CONDITIONS OF A
LIQUID ROCKET ENGINE COMBUSTION CHAMBER. METHODS OF PREVENTING THIS
INSTABILITY FROM OCCURRING ARE CONSIDERED.

UNCLASSIFIED

1/2   016
UNCLASSIFIED
TITLE--GEOCHEMISTRY OF DISPERSED ORGANIC SUBSTANCES IN PRECAMBRIAN
   FORMATIONS OF SPITSBERGEN -U-   PROCESSING DATE--04DEC70
AUTHOR-(04)-DANYUSHEVSKAYA, A.I., VOYTSEKHOVSKAYA, A.G., KOLOTOVA, L.F.,
   KRASILSHCHIKOV, A.A.
COUNTRY OF INFO--USSR

SOURCE--GEOL. NEFTI GAZA 1970, 14(3), 47-53

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--GEOCHEMISTRY, ARTIC GEOLOGY, GREEN ALGAE, MOLECULAR STRUCTURE,
   CARBONYL COMPOUND, GEOLOGIC FORMATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0146
                              STEP NO--UR/0009/70/014/003/0047/0053
CIRC ACCESSION NO--AP0135643
                    UNCLASSIFIED

2/2 016
CIRC ACCESSION NO--AP0135643 UNCLASSIFIED
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MOL. STRUCTURE OF DISPERSED PROCESSING DATE--04DEC70
ORG. SUBSTANCES (DOS) IN CARBONATE AND TERRIGENOUS CARBONATE REEFS OF
THE UPPER PRECAMBRAIN LOWER PALEOZOIC SECTION OF SPITSBERGEN WAS
CHARACTERIZED BY IR SPECTROSCOPY, CHROMATOG., X RAY ANAL., PETROGRAPHY,
AND BITUMEN EXAMN. THE ORG. SUBSTANCE IS A PRODUCT OF BLUE GREEN ALGAE
TRANSFORMATION. THE INSOL. ORG. SUBSTANCE PROBABLY IS COMPOSED OF
POLYCYCLIC AROMATIC MOLS., WHICH CONTAIN CARBONYL CO GROUPS (POSSIBLE
QUINONE TYPE) AND SMALL QUANTITIES OF CH SUB2 AND ME SIDE GROUPS. THE
STRUCTURE IS SIMILAR TO THOSE OF THE DOS INPRECAMBRIAN FORMATIONS OF
NORTH AMERICA AND GREENLAND.

UNCLASSIFIED

USSR

VOYTSEKHOVSKAYA, G. V., SYROV, Yu. P.

UDC 512.25/.26+519.3.530.115

"One Method of Solving a Discrete Problem of Mathematical Programming"

Metody Upr. Bol'shimi Sistemami. T. 2 [Methods of Control of Large Systems, Vol. 2 -- Collection of Works], Irkutsk, 1970, pp 204-210 (Translated from Referativnyy Zhurnal Kibernetika, No. 4, April, 1971, Abstract No. 4 V570 by Yu. Finkel'shteyn).

Translation: The problem of optimization of the structure of a planned electric power engineering system is studied. The initial technical and economic prerequisites are briefly presented. Mathematical formalization leads to the problem of nonlinear discrete programming of a special type. To provide an approximate solution, it is suggested that the method of group relaxation (coordinate-by-coordinate descent) be used. The method was applied to solve the problem of optimization of the structure of actual power engineering systems. The results of calculations were used in planning practice. An experimental study was performed, showing that of several different existing versions, from which the process of solution is begun, the same result is produced. The authors consider without foundation that the stable solution produced can be considered the global optimum (or near it).

1/1

VOYTSEKHOVSKIY, A. V.

TECHNICAL TRANSLATION

FSTC-HT-23-1585-71

ENGLISH TITLE: Some Electrical and Thermal Electrical Properties of GaAs - CdS solid solutions

FOREIGN TITLE: Nekotoryye Elektricheskiye I Termoelektricheskiye Svoystva Tverdykh Rastvorov GaAs - CdS

AUTHOR: Voytsekhovskiy, A. V.
Fadeev, A. P.

SOURCE: Izvestiya Vysshikh Uchebnykh Zavedeniy - Fizika
No. 5 (96), 1970, PP 153-155

Translated for FSTC by Leo Kanner Associates

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USSR

VAYSBAND, YA. S., VOYTSEKHOVSKIY, A. B., ZHURISHKIN, A. P., Central Scientific
Research Institute of Transportation Construction

UDC 621.791.75:621.397.13

"Television Scanning System for Automation Direction of the Electrode Along
the Joint"

Kiev, Avtomaticheskaya Svarka, No 7, 1971, pp 49-52

Abstract: The television scanning system developed by the authors is described.
It differs from the known systems [Dudenkov, Obmen opytom v radioelektronnov
proizvodstvo, No 7, Kiev, 1964; Demchenko, et al., Svarochnove proizvodstvo, No
2, 1970 and Wall, et al., Welding Journal, No 9, 1969] both with respect to
the principle of separation and processing of the information on the electrode
position relative to the joint and their possibilities. When using the given
scanning system it is possible automatically to guide both the tip of the weld-
ing unit and the end of the consumable electrode along the joint, and the
welding process and position of the electrode can be observed remotely. The
system developed for the Neptun automatic welding machine can be adapted to any
machine designed for gas-blanketed welding of joints by a nonconsumable elec-
trode. The operation of the device, its assembly, and technical specifications
are discussed in detail. The results of testing the system demonstrated that
it provides for automatic direction of the electrode along the joint with an

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USSR

VAYSBAND, YA. S., et al., Avtomaticheskaya Svarka, No 7, 1971, pp 49-52

accuracy no worse than 0.7 mm during single-pass welding of rectilinear and
curvilinear joints without and with taper of the edges at speeds of 10-40
meters/hour.

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USSR

VOYTSEKHOVSKIY, B. L., POLYAK, R. Ya., and SMORODINTSEV, A. A., Member,
Academy of Medical Sciences USSR, All-Union Scientific Research Influenza
Institute, Leningrad

UDC 576.858.75

"Determination of the Toxic Activity of Influenza Virus with Respect to
Inhibition of Oxygen Consumption in the Virus-Cell System"

Moscow, Doklady Akademii Nauk SSSR, Vol 201, No 6, 1971, pp 1,478-1,480

Abstract: The effect of influenza virus strains on the respiratory function
of human and animal cells sensitive and resistant to infection with the
virus was studied. Influenza virus A_2-Hong Kong/68 that had been partly
purified by centrifuging and with freon-113 stimulated the respiration of
infected susceptible cells (chick embryo and human embryo cultures) and
inhibited the respiration of resistant cells (human leukocytes and chick
embryo fibroblasts. The toxic effect of the virus on respiration was sup-
pressed by type-specific antibodies. Microcalorimetric determination of
the heats of reaction of various substrates with a virus-infected and non-
infected homogenate of chick embryo fibroblasts showed that all principal
stages of glycolysis and oxidation were altered by infection with the virus.
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USSR

The decrease in the consumption of O_2 was accompanied by reduced activity of glycolytic and oxidative enzymes, increased activity of ATP-ase, and accelerated utilization of NAD-H_2. There was a direct relationship between the toxic activity of a virus strain, as indicated by inhibition of cell respiration, and the pathogenicity of the strain to the cell donor. The strain A_2-Hong Kong/3 with a highly virulent effect on humans was much more toxic to human leukocytes than the vaccinal strain A_2-Hong Kong/21, which is adapted to chick embryo fibroblasts. On the other hand, strain A_2-Hong Kong/21 was more toxic to chick embryo fibroblasts than to human leukocytes. The results obtained show that the toxicity of an influenza virus strain, and consequently its virulence, can be conveniently determined on the basis of its capacity to inhibit the respiration of resistant cells.

2/2

USSR

VOYTSEKHOVSKIY, B. V.

UDC: 622.23:622.271/.274

"A Jet Nozzle for Producing High Dynamic Pulse Thrusts"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 8, Mar 72, Author's Certificate No 330250, Division E, filed 31 Oct 63, published 24 Feb 72, p 102

Translation: This Author's Certificate introduces: 1. A jet nozzle for producing high dynamic pulse thrusts in installations which utilize the impact of a piston freely accelerated through a liquid located in front of the nozzle, whose inner cavity is free of liquid up to the moment of impact. As a distinguishing feature of the patent, the profile of the inner cavity of the nozzle is designed in such a way that in front of the en- trance into the cavity the static pressure of the liquid which decelerates the piston remains constant during the braking process. 2. A modification of this nozzle distinguished by the fact that a liquid pressure of up to 3000 atmospheres is obtained in front of the nozzle by making the profile of its inner cavity conform to the equation

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USSR

VOYTSEKHOVSKIY, B. V., USSR Author's Certificate No 330250

$$S = S_0 \cdot e - \frac{y}{k},$$

where S is the running value of the area of the inner cross section of the nozzle cavity, S_0 is the area of the input cross section of the cavity, y is the running coordinate along the axis of the nozzle, e is the base of the system of natural logarithms, and k is a design parameter expressed by the following relation:

$$k = \frac{S_0 \cdot M}{\rho \cdot S_1^2},$$

where ρ is the density of the liquid, M is the mass of the piston, and S_1 is the cross sectional area of the piston.

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USSR

VOYTsENYa, V. S., ONIShchENKO, I. N., SAPPA, N. N., SAFRONOV, V. G., and
TRUBChANINOV, S. A.

"Interactions of Moving Plasma with Non-Uniform Magnetic Fields"

Abstract: Various types of instabilities have been detected in plasmas moving in a
uniform magnetic field, and the unstable movements are apparently determined by the
properties of the plasma and the conditions of its entry into an axial magnetic field,
independently of the source. Systems in which the magnetic field increases with
increasing radius and systems with force-line intersections (helical symmetry)
restrict some of these instabilities. Experiments conducted with two configurations —
a direct stellarator and a quadrupole magnetic field in combination with an axially
symmetric field showed that plasma at a density of approximately $10^{13} cm^{-3}$ moves
along force-lines, leading to a better result for the stellarator field than for the
combination of an axially symmetric field and a multipole field. The stellerator
field was found to reduce the non-uniformity of electric potential observed with the
other field and to leave significantly less plasma close to the walls of the container.

1/1

USSR   UDC 612.821.6

DMITRIYEV, A. S. and VOYTYUKOVA, Z. V., Chair of Human and Animal Physiology, Bashkir State University, Ufa

"Formation of Subjective Time Estimation in Man"

Abstract: Subjective time estimation was studied in 20 8-to-9-year-old children, 21 11-to-13 year-olds and 21 15-to-16 year-olds, using the verbal estimation of 45-, 60- and 100-second intervals and operative estimation (measuring) of a 60-second interval. Half of each group was trained to correctly estimate a 60-second interval using light signals, and then given a series of false information as to the correctness of their estimate. Counting was used as an aid. After similar training, the second half was given false information as to the correctness of their counting tempo. Accuracy of estimation was found to increase with age. Except for some of the youngest, the children spontaneously used counting as an aid. Training, while quickly effective for the older subjects, did not increase the accuracy of most of the younger ones. However this training was quickly undone by false information, except for the 8-to-9-year-olds. The rate of counting
1/2

USSR

DMITRIYEV, A. S. and VOYTYUKOVA, Z. V., Zhurnal Vysshey Nervnoy Deyatel'nosti
imeni I. P. Pavlov, Vol 23, Vyp 4, Jul/Aug 73, pp 704-710

was lowered by the false information in both groups, and almost always lead
to a subsequent underestimation of the intervals. These results are said
to confirm that subjective time estimation is a generalized reflection of
time in a second signal system, usually, but not always, a mental count,
based on a conditioned reflex to time.

2/2

USSR

VOZBINAS, S. YU., Institute of Physics and Mathematics of the Lithuanian Academy of Sciences

"Amount of Information Received by Linear Separation of Gaussian Signals"

Vilnius, Trudy Akademii Nauk Litovskoy SSR, Seriya B; Sep-Oct 73, pp 157-159

Abstract: The article concerns the problem of deriving information from the separation of Guassian signals. A considerable difference between one-dimensional linear filtration and separation of signals is hown to exist. The authors obtain an equation for obtaining information by the separation of signals with linear methods:

$$I(x_n/\vec{s}) = \frac{1}{2} \lg \frac{\det \overline{x_n x_n'}}{\det (x_n x_n' - x_n \overline{\vec{s} B_{\vec{s}}^{-1} \vec{s} x_n})} = \frac{1}{2} \lg \frac{\det \overline{x_n x_n'}}{\det (x_n - \hat{x}_n) x_n'} =$$

$$= \frac{1}{2} \lg \frac{1}{\det (\alpha_n - \hat{\alpha}_n) \alpha_n'} = \frac{1}{2} \sum_{(k)} \lg \frac{1}{1-\lambda_k} = I(\vec{s}/x_n) =$$

$$= \frac{1}{2} \lg \frac{\det B_{\vec{s}}}{\det (B_{\vec{s}} - \overline{\vec{s} x_n' B_{x_n}^{-1} x_n \vec{s}})} = \frac{1}{2} \lg \frac{1}{\det (\vec{u} - \hat{\vec{u}}) \vec{u}} ,$$

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USSR

VOZBINAS, S. YU., Trudy Akademii Nauk Litovskoy SSR: Seriya B; Sept-Oct 73, pp 157-159

where α_n , $\vec{\sigma}$ are "whitened" x_n and $\vec{s}$ respectively, $\hat{\alpha}_n$ is the optimal evaluation of α_n for known $\vec{s}$, $\hat{\vec{\sigma}}$ is the optimal evaluation of $\vec{\sigma}$ for known x_n , λ_k are eigenvalues of the symmetric operator $\hat{\alpha}_n \alpha'_n$.

The article includes four equations. There are six references.

2/2

1/2   022
UNCLASSIFIED
TITLE--USE OF RELATIVE IONIZATION POTENTIALS OF ELEMENTS FOR EVALUATING
   THE STABILITY OF THEIR OXIDES AND SILICIDES -U-   PROCESSING DATE--02OCT70
AUTHOR--VOZDVIZHENSKIY, V.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHI. 1970, 44(2), 317-19

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--IONIZATION POTENTIAL, CHEMICAL STABILITY, TRANSITION METAL
   OXIDE, SILICIDE, MELTING POINT, IONIC BONDING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0864
                                  STEP NO--UR/0076/70/044/002/0317/0319
CIRC ACCESSION NO--AP0104300
                     UNCLASSIFIED

CIRC ACCESSION NO--AP0104300   UNCLASSIFIED   PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCE OF THE STABILITY OF
TRANSITION METAL OXIDES AND SILICIDES ON IONIZATION POTENTIAL OF THE
CONCERNED METAL WAS BASED ON THE PRESUMPTION THAT IONIZATION POTENTIAL
DETS. THE STABILITY OF ITS COMPDS. PROVIDED THEY HAVE EITHER COVALENT OR
IONIC BONDS. THE STABILITY OF OXIDES AND THE M.P. OF SILICIDES OF
TRANSITION METALS INCREASE WITH INCREASING RELATIVE IONIZATION POTENTIAL
OF THE ELEMENT.

UNCLASSIFIED

USSR

VOYTSENYA, V. S., ZISER, V. Ye., DIKIY, A. G., ZHDANOV, A. I.,
PINOS, I. B., YAROKER, Ya. N.

UDC 533.92:621.039.61

"Calculation and Modeling of Helical Windings of Various Types on Toroidal
Surfaces"

Translation: The problem of the possibility of using various winding patents
for helical conductors on toroidal surfaces is investigated: geodesic lines,
lines of constant inclination to the generatrix of the torus, and lines of a
cylindrical and toroidal spiral. It is shown that a tight elastic grid can
be a fairly good approximation for geodesic lines on a torus. Data are given
for constructing a geodesic line on a toroidal surface with an arbitrary
aspect ratio. The calculations were made on the "Ural-4" and "Mir" computers.

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Radiation Chemistry

3

USSR

UDC 541.182.65:541.15

MAZINA, G. R., PANICH, R. M., USTINOVA, Z. M., VOYUTSKIY, S. S., FODIMAN, N. M., KRATSHTEYN, P. N., and KUZNETSOVA, G. I., Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov

"Effect of Ionizing Radiation on the Properties of Fluorine-containing Copolymer Latex"

Abstract: The effect of ionizing radiation on the properties of fluorine-containing copolymer latex was studied by using Co^{60} as a source, the radiation dose ranging from 0.25 to 50 Mrad. The pH of the irradiated copolymer latex became lower, as did the resistance to electrolytes. After irradiation the coagulation threshold of the latex was also lowered with simultaneous coagulation of globules and intraglobular crosslinking of the polymer. Increased radiation dose resulted in greater three-dimensional lattice density. Irradiation of the latex does not lead to formation of intraglobular chemical bonds and to better film formation.

1/1

UNCLASSIFIED

TITLE--RESEARCH IN THE COLLOID CHEMISTRY DEPARTMENT AT THE M. V. LOMONOSOV INSTITUTE OF FINE CHEMICAL TECHNOLOGY, MOSCOW -U-

PROCESSING DATE--23OCT70

AUTHOR-(02)-VOYUTSKIY, S.S., PANICH, R.M.

COUNTRY OF INFO--USSR

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--COLLOID, SCIENTIFIC R AND D, LATEX, POLYMER, SURFACE ACTIVE AGENT, TEXTILE, ADHESION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0449

STEP NO--UR/0138/70/029/004/0042/0044

CIRC ACCESSION NO--AP0119385

UNCLASSIFIED

2/2   030
CIRC ACCESSION NO--AP0119385   UNCLASSIFIED
PROCESSING DATE--23OCT70
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. A REVIEW WITH 31 REFS.   TOPICS
INCLUDE STABILITY AND COAGULATION OF LATEXES AND POLYMER DISPERSIONS
CONTG. NONIONIZED SURFACE ACTIVE AGENTS AND MCEHANISMS OF FILM FORMATION
FROM LATEXES AND DISPERSIONS, LATEX IMPREGNATION OF TEXTILES, AND
ADHESION.   FACILITY: MOSK. INST. TONKOI KHIM. TEKHNOL. IM.
LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

VOZBINAS, S. Yu.

UDC: 619.21

"On an Algorithm for Converting Statistically Dependent Random Quantities
to Independent Quantities"

V sb. Avtomatika i vychisl. tekhn. (Automation and Computer Technology--
collection of works), No 3, Vil'nyus, "Mintis", 1971, pp 27-29 (from RZh-
-Kibernetika, No 11, Nov 71, Abstract No 11V7)

[No abstract]

1/1

1/2   014
UNCLASSIFIED
TITLE--REACTION OF MOLYBDENUM OXYCHLORIDE WITH NATURAL TITANIUM COMPOUNDS
-U-
PROCESSING DATE--30OCT70
AUTHOR-(04)-YELISEYEV, S.S., GLUKOV, I.A., VOZHDAYEVA, YE.YE.,
NARZIKULOVA, R.M.
COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK. TADZH. SSR, 1970, 13,2, 33-6

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MOLYBDENUM COMPOUND, CHLORIDE, TITANIUM COMPOUND, CHEMICAL
REACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0990

STEP NO--UR/0425/70/013/002/0033/0036
CIRC ACCESSION NO--AT0118155
UNCLASSIFIED

CIRC ACCESSION NO--AT0118155   UNCLASSIFIED   PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF POWD. ILMENITE WITH $MOOCL_4$ IN A SEALED AMPULE ON HEATING IS $FETIO_3$ PLUS $3MOOCL_4$ EQUALS $TICL_4$ PLUS $3MO_2CL_2$ PLUS $FECL_2$. IN THE UPPER PART OF THE AMPULE (COOLED WITH H_2O) $TICL_4$, AND MOO_2CL_2 CONDENSED. AT 140-220DEGREES THE AMT. OF $FECL_4$ AND $TICL_4$ INCREASED RAPIDLY WITH THE TEMP. THE UNREACTED, DRY RESIDUE DECREASED LINEARLY AS THE TEMP. INCREASED. IN THE REACTION TIO_2 PLUS $2MOCL_4$ THE PRODUCT MO_2CL_2 REMAINED IN THE RESIDUE. THIS RETARDED THE REACTION, SO THAT BELOW 220DEGREES ONLY 27-30PERCENT OF TIO_2 REACTED.   FACILITY: INST. KHIM., DUSHANBE, USSR.

UNCLASSIFIED

USSR

UDC 619:616.981.42-036.2:636.293.3

VOZHDAYEV, N. S., SHERGIN, YU. K., Candidates of Veterinary Sciences and
BELYAKOV, A. I., Kirgiz Scientific Research Institute of Livestock Raising
and Veterinary Medicine

"Epizootiology of Brucellosis Among Yaks"

Abstract: Brucellosis was first detected among yaks in Kirgizia in 1955 in
the Central Tyan-Shan region and on the mountain pastures in the Issyk-Kul
hollow. Since then it has spread to many other parts of the republic, and
the incidence ranges from 0.27 to 71% in various herds. The disease is trans-
mitted mainly by contact between sick and healthy animals or through the alimen
tary route due to numerous abortions and infection of the pastures with
excretion from sick animals. The course of brucellosis in yaks may be acute
or chronic. If chronic, most animals do not exhibit clinical symptoms and
the final diagnosis must be based on serological, bacteriological, and biolo-
gical examination. The disease is mots prevalent in the spring and summer
(mating and calving period), but prompt prophylactic serological examinations
help to keep it from spreading.

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USSR

UDC 546.77.791

YELISEYEV, S. S., GLUKHOV, I. A., and VOZHDAYEVA, YE. YE., Institute of
Chemistry, Acad. Sc., Tadzhik SSR

"Oxychlorides of Penta- and Tetravalent Uranium UO_2Cl and $UOCl_2$"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 17, No 5, May 72, pp 1203-1208

Abstract: A simple method is reported for the synthesis of lower uranium
oxychlorides UO_2Cl and $UOCl_2$ by heating the mixtures of UO_3 and $MoOCl_3$ to
220°C. In the process the exchange and oxidation-reduction reactions take
place leading to the formation of the lower pentavalent uranium oxychloride
UO_2Cl, when equimolar quantities of UO_3 and $MoOCl_3$ are used. With excess
$MoOCl_3$ the process continues yielding the tetravalent uranium product $UOCl_2$;
reaction of UO_2Cl with $MoOCl_3$ taken in 1:1 ratio also yields the tetravalent
product.

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Radiation Chemistry

USSR

UDC 546.77.791

YELISEYEV, S. S., GLUKHOV, I. A., VOZHDAYEVA, YE. YE., Institute of Chemistry, Tadzhik Academy of Sciences

"Reaction Between $MoOCl_3$ and UO_2Cl_2"

Dushanbe, Doklady Akademii Nauk Tadzhikskaya SSR, Vol 2, 1971, No 2, pp 36-39

Abstract: The authors had previously discovered that heating $MoCl_5$ with UO_3 would produce MoO_2Cl_2 and $UOCl_3$, instead of the expected $MoOCl_3$ and UO_2Cl_2. To explain this, tests were run in sealed ampoules. It was concluded that (1) the first stage of the thermal reaction between UO_2Cl_2 and $MoOCl_3$ is one of oxidation-reduction ($MoOCl_3 + UO_2Cl_2 = MoO_2Cl_2 + UOCl_3$), in which U^{VI} is converted into U^V, and Mo into Mo^{VI}; (2) action between UO_3 and $MoCl_5$, leading to the formation of $UOCl_3$ and MoO_2Cl_2 as final products ($UO_3 + MoCl_5 = UOCl_3 + MoO_2Cl_2$), takes place in two stages--first an exchange reaction ($UO_3 + MoCl_5 = UO_2Cl_2 + MoOCl_3$), then the oxidation reaction referred to.

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USSR

UDC 621.382.002

VOZHENIN, I.N., KOROBOV, A.I., NAUMCHENKO, A.S., OBOROTOV, A.F., REPIN, V.A.

"Quality Of Films Of Barium-Borosilicate Glasses Produced In A Vacuum By Thermal Evaporation"

Elektron. tekhnika. Nauch.-tekhn.sb. Upr.kachestvom i standartiz (Electronics Technology. Scientific-Technical Collection. Quality Control and Standards), 1971, Issue 1(7), pp 84-90 (from RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10B432)

Translation: The properties of a film of optimum composition 20 B_2O_3:80 C_2 produced by vacuum-thermal evaporation by the flash method of powdered glass are equal to the basic properties of massive glass of the same composition. The films differ from massive glass by the increased defectiveness of the structure and the deficiency of oxygen. By annealing of the films in air and introduction of the corresponding impurities it is possible to improve the structure and to vary the electrical properties. The infrared absorption spectra of the films is presented, as well as the dependence of the breakdown voltage of the films on the thickness. With the introduction of BaO into the films, the dielectric constant of the films is linearly increased to six. During this, the tangent of the loss angle is smoothly increased and at 2-3 orders of magnitude, the breakdown voltage and the volume resistivity are decreased. Simultaneously, the magnitude of the internal mechanical stress is reduced.
6 ill. 2 tab. 8 ref. I.M.
1/1

USSR

UDC: 621.3.049.75:774

LAVRISHCHEV, V. P., VOZHENIN, I. N., KANDYBA, P. Ye., MOROZOVA, R. A., FOMENKO, P. A.

"A Method of Making Microcircuits"

Abstract: This author's certificate introduces a method of making microcircuits based on repeated selective chemical etching. As a distinguishing feature of the patent, the procedure is designed to provide a broad range of resistor values in a single microcircuit and to simplify manufacturing technology. Resistive layers with various resistivities are applied in sequence to the substrate in order of decreasing resistivity, and the technological layer is used for making low-value resistors.

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VOZHESENSKIY, R.M.

TESTS OF SAMPLES OF ABSORBING ELEMENTS OF FAST POWER REACTORS IN THE BR-5 REACTOR

[Paper by V. D. Klimov, V. I. Matveyev, B. G. Arabey, R. M. Voznesenskiy and N. Yu. Gorbatov, Physics-Energy Institute, Obninsk; Dimitrovgrad, Toploobmennyyukichiye materialyi starshni requiircovaniye bystrykh reaktorov (Absorbing materials and control rods for fast reactors), International Working Group for Fast Reactors Specialists Meeting, Russian, Dimitrovgrad, 4-8 June, 1973]

Introduction

Control units are one of the most important elements of the design of a reactor. Their development is associated with the performance of various experimental investigations, including radiation tests giving the most complete information concerning the efficiency of one design or material or other.

In spite of our great experience in the designing of control units for thermal reactors, and the large quantity of con-

In this work the results of radiation investigations of experimental specimens of PEL (absorbing elements) irradiated in the BR-5 fast reactor are given. Absorbing materials based on boron were investigated, and also metallic tantalum and various structures of PEL, hermetically sealed and non-hermetically sealed. Irradiation was conducted in a special cassette, located at the edge of the reactor core, and the general integral flux of irradiation by fast neutrons amounted to 3 x 10¹ n/cm², which corresponds to burn-up in boron-containing materials of ~2 atomic percent of boron. In the work the basic results are given with respect to gas liberation, and the structure of the irradiated materials, swelling and also data on the physical and thermophysical radiation regimes.

VOZHESENSKIY R.

BASIC PROBLEMS IN THE DESIGNING OF ABSORBING RODS OF FAST POWER REACTORS

Article by V. I. Matveyev, N. Ye. Gorbatov, V. P. Smirnov, Physics-Energy Institute; Chnlnsk; Dimitrovgrad, reaktoruy zdvahchiys materials i materini requirovaniya bystrnh ing, Dimitrovgrad, 4-8 June, 1973]
[Absorbing material and control rods for fast reactors, International Working Group for Fast Reactors Specialists Meet-

In this work the basic principles of the selection and development of regulation units for fast power reactors are considered. The results of measurements of the efficiency of various materials in BFS assemblies are given. The operating conditions of the regulation units are considered. Various problems of the designing of absorbing rods are discussed. The results of pre-reactor tests with respect to investigations of the compatibility of boron carbide, boron, and europium oxide with steel OKh16N15M3B are given.

1. Physical Principles of the Selection of Regulation Units for Fast Power Reactors

Selection of the method of regulation of a reactor is determined by various factors, the most important ones of which are the provision of the necessary reserve of reactivity. The fast region of energies is characterized by relatively small magnitudes of neutron cross-sections, especially absorption cross-sections, for practically all elements. Nevertheless, the most effective method of regulating fast power reactors is the most of regulation by absorbing material, although the selection of such materials is very limited [1]. Calculation and experimental investigations demonstrate that the most effective materials which are of practical interest are materials based on boron-10, europium, rhenium and tantalum. The comparative efficiency of various materials, measured on a model of the BN-350 reactor assembly BFS-16) [2] is presented in Table 1.

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USSR   UDC 534.21:539.3

LUKASHEV, A.A., LYSKO, YE.M., VEREMEYENKO, S.V., VOZHEVSKAYA, S.M.,
LOSHCHININ, V.F. (Kishinev), All-Union Scientific Research Institute for the
Development of Non-Destructive Methods and Facilities for Quality Control
of Materials.

"Distribution of Elastic Waves in a Solid For a Four-Constant Elastic Model
of a Continuous Medium"

Kiev, Prikladnaya Mekhanika, No 3, 1972, pp 32-35

Abstract: Equations are obtained for the velocity of sound in a nonlinear
four-constant model of a continuous elastic medium. Change of the velocities
of the longitudinal waves with pressure is described by a combination of
second- and third-order elastic constants. Change of the velocities of the
transverse waves is determined only by second-order elastic constants (geo-
metrical nonlinearity). It is shown that the numerical values of second-order
elastic constants obtained at zero pressure and at uniaxial compression differ
by a factor of several units. 1 table, 4 bibliographic entries.

1/1

USSR

VOZHEVSKIY, S. M.

"A Contact System"

USSR Author's Certificate No 255390, Filed 18 Nov 68, Published 31 Mar 70 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10V393 P)

UDC: 621.396.69(088.8)

Translation: This Author's Certificate introduces a contact system which contains a contact holder, contact bridge and support component located in an aperture of the contact holder, and two contact springs separated by a certain distance and located between the contact bridge and the support component symmetrically with respect to the axis of symmetry of the contact system. As a distinguishing feature of the patent, the operational reliability of the system is improved and technology is simplified by hinging the support component to the contact holder, the hinge being located on the axis of symmetry of the contact system.

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USSR

UDC 546.821.882.620.187

VOZILKIN, V. A., BUYNOV, N. N., BYCHKOV, Yu. F., VERESHCHAGIN, V. G., KARASIK, V. R., KURGANOV, G. B., and MAL'TSEV, V. A., Institute of Metal Physics, Academy of Sciences USSR; Physics Institute imeni P. N. Lebedev, Academy of Sciences USSR

"Electron-Microscopic Investigation of the Structure of Superconducting Alloy Ti-22 at. % Nb"

Abstract: A study was made of the structure of a superconducting alloy (Ti-22 at. % Nb) with the help of a transmission electron microscope. The heat treatment regimes were determined at which separation of ω- and α- phases takes place in the alloy. The formation of the separations of ω-phase, whose dimensions increase with an increase in the aging temperature, was observed in the alloy during water quenching from 800°. In the 390-425° interval of aging temperatures while in the 470-500° interval, particles of the ω-phase were separated in the quenched alloy the separations were predominantly particles of the α-phase. A study was made of the shape and orientation
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USSR

of the particles of these phases. The effect of dimensions of the particles
of ω- and α-phases on the dependence $j_c(H)$ is shown. The authors thank
T. V. SHCHEGOLEVA and V. G. RAKIN for useful discussion and S. A. KHUDOTEPLOV
for assistance in obtaining the electron-microscopic photographs.

2/2

USSR

UDC 537.312.62

BUYNOV, N. N., VOZILKIN, V. A., and RAKIN, V. G., Institute of Metal Physics, Academy of Sciences USSR

"Study of the Structure of 65BT Superconducting Alloy

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 29, No 5, May 70, pp 1005-1009

Abstract: Using X-ray micrographic and electron microscopic methods, a study was made of the structure of the 65BT superconducting alloy after different regimes of heat treatment for the purpose of establishing a relationship between the structure and superconducting characteristics. The alloy was studied after the following regimes of treatment: water quenching from 1250°; tempering at 300, 500, 600, 700, 800, and 880° for 30 min; and tempering at 600° for 45 hrs, 700° for 2 hrs, 800° for 6 hrs, and 880° for 20 hrs. Decomposition took place in the alloy during heating in the temperature 300-880° range, which is followed by high refining of a certain volume of the solid solution. At tempering temperatures above 900° C, no decomposition was observed. The separated particles, upon attaining the size of 0.1 micron, become the source of dislocations. The authors thank L. M. Fedotov (TsNIIChM) for the alloy and S. Y. Sudareva for help with the work.

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1/2   030   UNCLASSIFIED   PROCESSING DATE--18SEP70
TITLE--ORIGIN OF DEFORMATION CONTRAST STUDIED ON THE BASIS OF THE POSITION
OF THE CONTRAST FREE LINES IN TITANIUM AND NIOBIUM ALLOYS -U-
AUTHOR-(04)-SUDAREVA, S.V., BUINOV, N.N., VOZILKIN, V.A., BYCHKOVA, M.I.

COUNTRY OF INFO--USSR

SOURCE--FIZ. METAL. METALLOVED. 1970, 29(1), 87-96

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--TITANIUM ALLOY, NIOBIUM, ELECTRON MICROSCOPY, METAL
DEFORMATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1984/0190   STEP NO--UR/0126/70/029/001/0087/0086

CIRC ACCESSION NO--AP0054986
                      UNCLASSIFIED

CIRC ACCESSION NO--AP0054986
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AFTER TEMPERING OF TI-NB ALLOYS
 THERE IS OBSD. ON ELECTRON MICROGRAPHS OF SUCH ALLOYS A CONTRAST IN THE
 FORM OF PAIRS OF DARK SEGMENTS WITH A ZERO INTENSITY LINE. THE NATURE
 OF THESE DEFECTS WAS STUDIED WITH THE AID OF THE DEFORMATION CONTRAST
 THEORY. A METASTABLE ALPHA PHASE WAS OBSD., COHERENTLY BONDED WITH THE
 MATRIX. THE OBSD. CONTRAST IS NOT ASSOCD. WITH VACANCY LOOPS, BUT IS
 CAUSED BY COHERENT DEFORMATION FIELDS AROUND THE PARTICLES OF THE ALPHA
 PHASE AND SOMETIMES THE OMEGA PHASE, DEPENDING ON THE STRUCTURAL STATE
 OF THE ALLOY.

UNCLASSIFIED

Transformation and Structure

USSR

UDC: 620.181:546.821.382

SUDAREVA, S. V., BUYNOV, N. N., VOZILKIN, V. A. and BYCHKOVA, M. I., Institute of
Physics of Metals, Academy of Sciences USSR

"Investigation of the Occurrence of Strain Contrast According to the Position of
the Line of No Contrast"

Abstract: The nature of strain contrasts in the form of a pair of dark segments
with a line of zero intensity, observed on electron microphotographs of Ti-Nb
alloys after tempering, was investigated using the strain contrast theories. The
form of alpha-phase particles and the geometry of stress fields near them were
studied. The arrangement of atoms in the (1$\bar{1}$0) beta-phase and in the (0001)
alpha-phase planes is given. Experiments were carried out on a Ti-50% Nb alloy,
with tempering at 500°C for different times, and on a Ti-39% Nb alloy after
tempering at 450°C for 15 min. The results are presented in the form of bright-
field microphotographs of the alloy structure after hardening and tempering for
various foil orientations and effective reflections. It is shown that the
observed contrast is not connected with interstitial loops but results from

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USSR

SUDAREVA, S. V., et al, Akademiya Nauk SSSR, Fizika Metallov i Metallovedeniye, Vol 29, No 1, Jan 70, pp 87-96

fields of coherent strain near the alpha-phase, and sometimes near the omega-phase particles, depending on the alloy structure state. The observed strain contrast confirmed the previously obtained theoretical and experimental data on strain fields near ω - particles, and also certain aspects from the theory of field images. It is noted in the conclusion that the Ti-39% Nb alloy hardened according to the B procedure disintegrates more slowly than that hardened by the A procedure. The omega-phase particles grow to large sizes; they retain the coherent bond and are present in great quantities in the alloy after 1 hour of annealing. However, metastable alpha-phase particles are present in the alloy. The experimental results obtained on the Ti-39% Nb alloy structure will be used in the future to establish the relationship between the superconducting proper-ties and the structure.

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USSR

UDC 547.813 + 547.241

KRIVUN, S. V., BARANOV, S. N., and VOZIYANOVA, O. F., Institute of Physical
Chemistry, Acad. Sc. UkrSSR, Donetsk Branch

"Carbanions From Pyranylphosphonates. Synthesis and Reactions With Carbonyl
Compounds"

Abstract: Phosphonates derived from some cyclic aromatic cations form
colored active carbanions in the reaction with potassium tert-butoxide.
Reacting these carbanions with carbonyl compounds yields alkylidene sub-
stituted derivatives of the appropriate rings. The latter and easily
strong mineral acids, such as hydrochloric acid, forming new aromatic
and heteroaromatic cations.

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USSR

KRIVUN, S. V., VOZIYANOVA, O. F., and BARANOV, S. N., Donetsk Department
of Physical and Organic Chemistry of the Institute of Physical Chemistry,
Academy of Sciences of the UkrSSR; Donetsk State University

"Reactions of Pyranylidenephosphoran With Carbonyl Compounds"

Abstract: Active phosphorans are synthesized by reacting potassium tert.-
-butoxide with phosphonium salts derived from salts of pyrylium and tri-
phenylphosphine. The resultant phosphorans are reacted with various carbonyl
compounds to give alkylidenepyrans. These pyrans combine with mineral acids
to give the corresponding pyrylium salts. The structure of the salts is
confirmed by IR-spectroscopy.

1/1

USSR

KRIVUN, S. V., VOZIYANOVA, O. F., BARANOV, S. N.

"Phosphonic Acids and Their Esters Based on Aromatic Cations"

Abstract: The isomerization of trialkylphosphites by the Arbuzov reaction is widely used to synthesize allyl and acetophosphonic acids and their esters [A. B. Arbuzov, Reaktsii i metody issledovaniya organicheskikh soyedineniy, No 3, 7, 1954]. The theoretical possibility of the interaction of triethyl-phosphite with pyridine [A. K. Sheykman, et al., ZhOKh, No 40, 700, 1970] and pyryl [O. F. Voziyanova, et al., ZhOKh, No 40, 1905, 1970] salts has been proved recently. A detailed study of the interaction of triethylphosphite with pyrylium salts demonstrated that chlorides, bromides or iodides of the pyrylium cations with free γ-positions are capable of reacting with phosphite by the Arbuzov reaction with the formation of esters of pyranylphosphonic acids. The latter are converted by acid hydrolysis to pyranylphosphonic acids. On interaction with hydride-ion acceptor, phosphonic acids and their esters are converted to the corresponding pyrylium salts. The tropylium and cyclo-propenylium salts react analogously.

1/1

USSR

KRIVUN, S. V., BARANOV, S. N., and VOZIYANOVA, O. F., Donets Department of Physicoorganic Chemistry of the Institute of Physicochemistry, Ukrainian SSR Academy of Sciences

UDC 547.813+547.241

"Arbuzov Rearrangement in the Series of Aromatic Cations"

Abstract: It had been shown that pyrylium chlorides, bromides and iodides with no substituent in the γ-position react with triethyl phosphite and form, by rearrangement, the corresponding esters of pyranylphosphonic acid. These products are viscous, not distillable, and difficult to crystallize. They were hydrolyzed to the corresponding acids. Pyranylphosphonic acid crystallizes with one molecule of hydrate water. The pyrylium perchlorates of this and similarly prepared phosphonic acids are yellow crystals and are easily hydrolyzed. Several pyrylphosphonic acids were so transformed into the corresponding pyridines for identification purposes. 2,6-Diphenylpyranyl-phosphonic acids was prepared from 2,6-diphenylpyrylium bromide. Similarly prepared was the thia analog, as well as the 2-phenylbenzylpyranyl- and 2-phenyl-5,6,7,8-tetrahydrobenzopyranylphosphonic acids.
1/1

USSR   UDC 547.241

VOZIYANOVA, O. F., BARANOV, S. N., KRIVUN, S. V., Donetsk Branch
of Physico-Organic Chemistry, Institute of Physical Chemistry,
Academy of Sciences Ukrainian SSR

"Pyranylphosphinic Acids"

Abstract: Reaction of 2,6-di-p-bromophenylpyrylium bromide with
triethylphosphite at 100°, followed by hydrolysis with concentrated
HCl, yields the respective pyranylphosphinic acid, m.p. 181°,
which on boiling with triphenylmethyl perchlorate converts to the
pyrylium salt m.p. 257° in which the phosphonium acid radical is
in position 4. Under analogous conditions, 2,6-diphenylpyrylium
bromide gives pyranyl phosphinic acid which crystallizes with one
molecule of water and melts at 248°. Other 2,6-substituted
pyrylium salts will react with triphenylphosphite under above
conditions.

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USSR

UDC 547.813+547.241

KRIVUN, S. V., VOZIYANOVA, O. F., and BARANOV, S. N.

"Pyrans and Salts of Pyrilium with Phosphorus-Containing Substitutions"

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 91-95

Abstract: If pyrilium salts interact with sodium slats of dialkyl phosphites under the conditions of the Michaelis-Becker reaction, it is possible to use heteroaromatic cations with any anions. This interaction takes place under significantly midler conditions than previously reported (S. V. Krivun, et al., DAN SSSR, No 196, 600, 1971). This is more convoient and safer and leads to pure final products. Various pyrilium, flavilium and xanthilium salts lead to the corresponding pyranil phosphonates on interacting with sodium salts of diethyl phosphite. During oxygen hydrolysis, the pyranil phosphonates are converted into phosphonic acids. These phosphonic acids and phosphonates react with triphenylmethyl perchlorate to form the pyrilium salt with phosphorus-containing substitutions.

1/1

1/2   022   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--INCREASING THE MECHANICAL PROPERTIES OF SIDE SILL STRIP 30T STEEL
  FOR TRUCKS -U-
AUTHOR-(03)-CHECHEKIN, YU.F., VOZLINSKIY, A.G., KUZMENKO, V.S.

COUNTRY OF INFO--USSR

SOURCE--STAL' 1970, 30(2), 166-7

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--MECHANICAL PROPERTY, TENSILE STRENGTH, CARBON STEEL, MANGANESE
  STEEL, SILICON STEEL, TRUCK/(U)30T STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/1865   STEP NO--UR/0133/70/030/002/0166/0167

CIRC ACCESSION NO--AP0115684
                     UNCLASSIFIED

CIRC ACCESSION NO--AP0115684   UNCLASSIFIED   PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MECH. PROPERTIES OF STEEL
CONTG. C 0.26-0.33, MN 0.5-0.8. SI 0.08PERCENT, WERE INCREASED TO 52-58
KG-MM PRIME2 TENSILE STRENGTH, 37.5-42 KG-MM PRIME2 YIELD POINT, AND
21-5PERCENT ELONGATION BY NORMALIZING AT 830-860DEGREES IN A CONTINUOUS
INSTALLATION WHICH IS DESCRIBED.   FACILITY: MOSK. AVTOZAVOD IM.
LIKHACHEVA, MOSCOW, USSR.

UNCLASSIFIED

Adsorption

USSR

UDC 541.183

BANINA, V. A., VOZMILOVA, L. N., MAMONTSOV, A. P., and FOMIN, G. G.

"Adsorption of Organic Solvents on the Surface of Gallium Arsenide"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 45, No 8, Aug 71, p 2098

Translation: The authors investigated the adsorption of acetone, benzene, carbon tetrachloride, methyl alcohol and ethyl alcohol on the surface of gallium arsenide. Organic solvents tagged with carbon-14 were used in the work. The counting apparatus did not permit counting the number of adsorbed molecules and therefore the ratio $N:S^m$ was calculated, which is proportional to the number of adsorbed molecules. Here N is the sample count (cpm) after treatment with the solvent and drying for two hours at room temperature and S^m is the calculated specific radioactivity of one gram molecule of solvent.

The results show that all investigated solvents are adsorbed on the surface of gallium arsenide. The degree of adsorption decreases in the order acetone > benzene > ethanol > methanol > carbon tetrachloride, in relative units: 37:15:7:6:1.

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USSR

BANINA, V. A., et al., Zhurnal Fizicheskoy Khimii, Vol 45, No 8, Aug 71, p 2098

A study of desorption of organic solvents from the surface of gallium arsenide on heating showed that all investigated solvents with the exception of carbon tetrachloride are fairly strongly held to the surface of gallium arsenide and are removed only with difficulty on heating. The hypothesis is advanced that bonding of the organic molecule to the surface of the semiconductor is due to donor-acceptor interaction.

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- 1 -

USSR

UDC 612.826.4

VOZNAYA, A. I. and KHARCHENKO, P. D.

"Relationship Between the Conditioned Effect and the Intensity and Duration of Stimulation of the Hypothalamus"

Kiev, Fiziologichniy Zhurnal, No 5, 1973, pp 630-636

Translation of abstract: Electrostimulation of the same site in the lateral hypothalamus of dogs was found to both intensify and weaken the food secretory conditioned reflex. Systematic study showed that the magnitude of the conditioned reflex regularly varied with the intensity and duration of the stimulating current. Stimulation of the hypothalamus with a current of minimum intensity inhibited the conditioned reflex, whereas currents of greater intensity increased it. The increase reached a peak and then diminished. With currents of still greater intensity, the conditioned reflex decreased and then disappeared. The diminution of the increase in magnitude of the conditioned reflex and of the conditioned reflex as a whole resulted from the development of inhibition. The latter as a whole resulted from the development of inhibition. The latter occurred at the end of the action of the conditioned stimulus and stimulation of the hypothalamus; the

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USSR

stronger the current, the earlier inhibition appeared. And the longer the stimulation of the hypothalamus, the more pronounced the inhibition and the greater the decrease in the conditioned reflex.

2/2

Pharmacology and Toxicology

ROMASHINA, L. V., VOZNAYA, N. M., GROSSE, R., RAKHIMOV, M. M., and LUZIKOV, V.
N., Laboratory of Bioorganic Chemistry, Moscow State University imeni M. V.
Lomonosov, Moscow ·

"Mechanism of the Inactivation of the Respiratory Chain by Cobra Venom
Phospholipase"

Abstract: The effects of phospholipase A isolated from the venom of the
Central Asian cobra on the respiratory chain of the succinate dehydrogenase
system of submitochondrial particles and the NADH oxidase complex (I + III + IV)
reconstructed from the cytochrome of c-oxidoreductase (I + III) and the cyto-
chrome of c-oxidase (IV) were studied.   It was found that electron transfer
was disturbed mainly at the level of cytochrome c in a link of the respiratory
chain common to the NADH and succinate oxidase systems.

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USSR

VOZNESENSKAYA, A. Kh., RAZUMOVA, N. A., and PETROV, A. A., Leningrad Tech-
nological Institute imeni Lensovet

"Condensation of Acetyl Ethylene Phosphite with Alpha, Beta-Unsaturated
Ketones"

Abstract: The condensation of acetyl ethylene phosphite with methyl vinyl
ketone or mesityl oxide yields compounds with pentacovalent phosphorus accord-
ing to the scheme
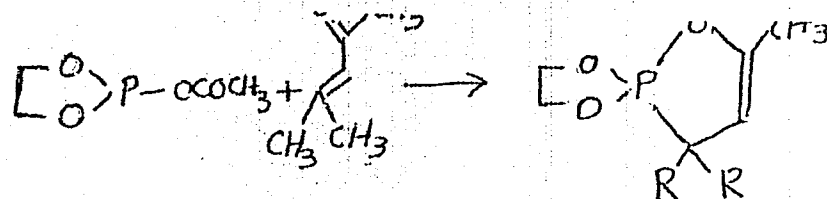
where R = CH_3 or H

The composition and structure of the resultant substances was confirmed by
analysis and IR and NMR spectra.
1/1

Mechanical Properties

VOZNESENSKAYA, N. M., IZOTOV, V. I., UL'YANOVA, N. V., POPOVA, L. S., and POTAK, YA. M.

"Structure and Properties of High-Strength 1Khl5N4AM3 Stainless Steel"

Abstract: The article describes results of a study of the effect of tempering temperature on the structural state and mechanical properties of 1Khl5N4AM3 (EP-310) stainless steel of the transition austenitic-martensitic class. Industrial electroslag-refined steel was used for the study. It was found that after tempering at 200° C the steel has higher mechanical properties (ductility, impact strength, and crack propagation energy) than widely-used structural high-strength steels (30KhGSNA) or maraging steels. The high strength is determined by a high dislocation density, the presence of twins, and the retention of a sufficient quantity of carbon and nitrogen in the solid solution. Tempering at 300-350° C causes a certain decline in strength and an increase in ductility and impact strength as a result of reduced car-

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VOZNESENSKAYA, N. M., et al., Metallovedeniye i Termicheskaya Obrabotka
Metallov, No 1, 1971, pp 32-35

bon and nitrogen content of the solid solution, with retention of high dislo-
cation density and distortions of the second kind. No precipitations are
found with the decrease in the number of interstitial atoms in the solid solu-
tion. At 450-500° C there is secondary hardening, consisting in the formation
of highly dispersed particles of the chromium carbonitride M_2X, accompanied
by a slight reduction in ductility and impact strength and a significant
decrease in crack propagation energy. The structure is characterized by a
decrease in the dislocation density and a significant decrease in distortions
of the second kind. At 550-650° C there is reverse $\alpha \rightarrow \gamma$ transformation.
The transformation begins at about 575° C, with the maximum amount of stable
austenite forming after heating to 625-650° C for 1-2 hours. At 650-700° C
there is a decrease in strength, with formation of the carbides $M_{23}C_6$ along
grain body and boundaries.

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Acc. Nr.
AP0055633

Abstracting Service:
CHEMICAL ABST.   6-20

Ref. Code
4N0460

111955w Dependence of the properties of rigid-chain polymers on their structure. 2,2'-Dicarboxy-5,5'(6,6')-bibenzimidazole and its polymerization. Yakubovich, A. Ya.; Voznesenskaya, N. N.; Braz, G. I. (Fiz.-Khim. Inst. im. Karpova, Moscow, USSR). Vysokomol. Soedin., Ser. B 1970, 12(2), 156-8 (Russ). 5.5'(6,6')-Bibenzimidazole - 2,2'-dicarboxylic acid dichloride (obtained by treating the Na salt with $SOCl_2$) readily entered into autocondensation to give a double-chain polymer I, sol. in concd. H_2SO_4 and 5% NaOH soln. Ir absorption bands, characteristic of benzimidazoles and polybenzimidazoles, confirmed its

(I)
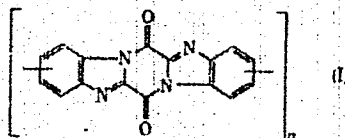
structure. I began to decomp. in the air at 350-400°.   CKJR

REEL/FRAME
19840935

1/2   017   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--FORMATION OF DEOXY SUGARS DURING THE IRRADIATION OF AQUEOUS
  SOLUTIONS OF CARBOHYDRATES -U-
AUTHOR-(04)-KOCHETKOV, N.K., KUDRYASHOV, L.I., YAROVAYA, S.M.,
  VOZNESENSKAYA, S.V.
COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (1), 201-2

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SACCHARIDE, AQUEOUS SOLUTION, RADIOLYSIS, ATMOSPHERE
  COMPOSITION, OXYGEN, NITROGEN, NITROGEN OXIDE, CHEMICAL REACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0434   STEP NO--UR/0062/70/000/001/0201/0202

CIRC ACCESSION NO--AP0117670
                          UNCLASSIFIED

UNCLASSIFIED

CIRC ACCESSION NO--AP0117670   PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE YIELDS OF ALTERED ALPHA METHYL D,GALACTOSIDE, GALACTOSE, INOSITOL, LACTOSE, STARCH AND BLOOD GROUP SUBSTANCE WERE TABULATED FOR IRRADN. OF THESE IN SOLN. IN AN ATM. CONTG. O SUB2, N SUB2, OR N SUB2 O AT PH 7 AT DOSES OF (1-9) TIMES 10 PRIME19 EV-ML IN TERMS OF RESULTING DEOXYSUGARS, AS WELL AS DEOXYKETO SUGARS. THE RESULTS INDICATED THAT FORMATION OF DEOXY DERIVS. INVOLVES REACTION OF HYDRATED ELECTRONS AND O SUB2 PRIME NEGATIVE IONS, WHILE DEOXYKETO SUGARS ARE FORMED BY THE ACTION OF HO. RADICAL.   FACILITY: INST. ORG. KHIM. IM. ZELINSKOGO, MOSCOW, USSR.

UNCLASSIFIED

USSR   UDC 547.455

KUDRYASHOV, L. I., LIVERTOVSKAYA, T. YA., VOZNESENSKAYA, S. V.,
KOVALEV, YU. I., SHARPATYY, V. A., and KOCHETKOV, N. K.

"Radiation Chemistry of Carbohydrates. XII. Effect of Structural
Factors on Course of Radiolysis Processes of Aqueous Solutions of
Methylglycosides"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 5, May 70, pp 1133-1137

Abstract: The authors studied regularities reflecting the relation-
ship between the structure of the glycoside molecule and processes oc-
curring during and after irradiation of aqueous solutions. The ob-
jects of study chosen were α-methyl-D-glucopyranoside, β-methyl-L-
arabinopyranoside and α-methyl-D-galactopyranoside. The radiation
sources used were a Co-60 device and an electron accelerator for fro-
zen solutions. The periodate oxidation method was used to determine
the glycoside concentrations of the irradiated solutions. It was
found that the stereochemistry of methylglycosides has a significant

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KUDRYASHOV, L. I., et al., <u>Zhurnal Obshchey Khimii</u>, Vol 40, No 5, May 70, pp 1133-1137

effect on their radiation resistance.   There is practically no forma-
tion of free monosaccharides in the radiolysis of dilute aqueous solu-
tions.   The principal process in the radiolysis of α-methyl-D-galac-
topyranoside and β-methyl-L-arabinopyranoside is the formation of
deoxy sugars.   According to EPR measurements, the composition and
ratio of radiolysis products depend on the structure of the initial
molecules and the reactivity of the intermediate particles that form.

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USSR

ARKHANGEL'SKIY, G. Ye., VOZNESENSKAYA, T. I., FOK, M. V., Physics Institute, Academy of Sciences of the USSR

"Effect of Manganese on the Cubic-to Hexagonal Lattice Transformation in Zinc Sulfide"

Abstract: The authors investigate the effect of manganese on the formation of the hexagonal phase in performed cubic crystals of zinc sulfide. The amount of a given phase was determined by comparing the intensities of EPR spectra of the Mn^{2+} ion which isomorphically replaces the zinc ions typical for the hexagonal and cubic environments. In the main experiments, the mean concentration of manganese was 10^{-4} gram atom per gram molecule of ZnS. It was found that the hexagonal phase forms on the surface as the specimen is melted at $1170^{\circ}C$. To determine the part played by manganese in formation of the hexagonal layer, similar experiments were conducted with a different manganese concentrations. It was found that the fraction of hexagonal phase decreases when the Mn concentration is reduced to 10^{-7} gram atom per gram molecule of ZnS. This indicates that manganese plays an active part in the cubic-to-hexagonal lattice transformation in zinc sulfide. However, if manganese was

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introduced into the cubic lattice at the instant of lattice formation, reheating to $1170^{\circ}C$ does not form the hexagonal phase. A crystal without manganese grown by the same method and then activated with manganese by diffusion acquires a hexagonal phase on the surface. Thus the hexagonal phase is formed in the diffusion process. The authors thank N. A. Gorbacheva and I. V. Shtambur for furnishing the crystals.

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Acc. Nr: *AP0042298*

Ref. Code: UR 0422

PRIMARY SOURCE: Standarty i Kachestvo, 1970, Nr 1, pp 42-44

Concerning Qualimetry of Materials.
Voznesenskiy. V. A.
The article suggests a criterion of material quality,
which incorporates the level of its production technology,
the manufacturer's obeyance to the rules of manufac-
turing, the customer's and the manufacturer's risk in
estimating the properties. the level of standardization,
and the relative importance of the object.

REEL/FRAME
19760236

USSR   UDC 621.375.4(088.8)

VOZNYAK, B. A.

"Amplifier"

USSR Author's Certificate No 252399, Filed 28 Dec 67, Published 23 Feb 70
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D108P)

Translation: This author's certificate introduces an amplifier containing
n series connected transistors with a feedback circuit. In order to decrease
the output resistance and increase the use coefficient of the power supply
with respect to voltage, n series-connected emitter repeaters made of tran-
sistors are connected to the feedback circuit of the amplifier. The bases
of these transistors are connected to various parts of the amplifier load.

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STUDIES ON INITIAL PERIODS OF MUSCULAR ACTIVITY IN TRAINED SUBJECTS

Mikhaylov, V. V.; Abrosimov, V. V.; Voznyak, S. V.;
Semashko, S. S.; Sergiyenko, V. B.
Dept. of Physiology, State Central Institute of Physical Culture, and the Lab.
of Biomechanics, the National Res. Institute of Physical Culture, Moscow

Increased energy cost of initial stage and during submaximal work performed by sportsmen on a bicycle ergometer right after less intensive work, is discovered as compared with energy expenditures under a steady state condition.

Values of the electric activity of 12 muscles of legs, arms and body, of the efforts applied to turn the pedals and shown by dynamogram, and of oxygen demand during various periods of work, are compared.

Increased energy expenditures during initial work periods are regarded from the viewpoint of a possible role of anaerobic reactions prevailing over aerobic those, spreading of excitation over the C. N. S. and energy expenditure overcoming inertia of the mechanical system.

D.H.

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1/2   020   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--STRUCTURE AND LUMINESCENT SPECTRA OF ARYLMETHYL RADICALS -U-

AUTHOR-(03)-KOZLOV, YU.I., SHIGORIN, D.N., VOZNYAK, V.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(3), 788-90

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--PHOTOLYSIS, LUMINESCENCE SPECTRUM, FREE RADICAL, ELECTRON SPIN
   RESONANCE, BENZENE DERIVATIVE, METHYLENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0722
                                    STEP NO--UR/0076/70/044/003/0738/0790
CIRC ACCESSION NO--AP0119629
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0119629
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PHCH SUB2 PH SUB2 CH AND PH SUB3
  C WERE PREPD. BY PHOTOLYSIS IN RIGID SOLNS. IN ETOH AT 77DEGREESK AND
  THE LUMINESCENCE OF ESR SPECTRA STUDIED; LUMINESCENCE SPECTRA WERE NOT
  INFLUENCED BY CONCN. OF RADICALS OF THE RIGID MATRIX. THE POSSIBILITY
  OF A "PROPELLER" STRUCTURE IS DISCUSSED. EXICTATION OF IRRADIATED SOLN.
  OF PH SUB2 CH SUB2 AT 313 M MU ALLOWED RECORDING OF LUMINESCENCE SPECTRA
  OF PHCH SUB2 TIMES, WHILE EXCITATION AT 334 M MU PROVIDED ONLY THE
  SPECTRUM OF BIPHENYL RADICAL. WAYS OF PREPG. PHCH SUB2 TIMES BY BOND
  RUPTURES ARE DISCUSSED.   FACILITY: NAUCH.-ISSLED. FIZ.-KHIM.
  INST. IM. KARPOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2   013
TITLE--BREAKING IN OIL -U-   UNCLASSIFIED   PROCESSING DATE--30OCT70

AUTHOR-(05)-KOSTETSKIY, B.I., SAVCHENKO, N.Z., KRAVETS, I.A., VOZNYUK,
-I.F., NATANSON, M.E.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 264,579
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--03MAR70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CHEMICAL PATENT, LUBRICATING OIL, MINERAL OIL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/0086   STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0127713
                        UNCLASSIFIED

CIRC ACCESSION NO--AA0127713   UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT.   OIL THAT REDUCES THE TIME REQUIRED
FOR BREAKING IN ENGINES AND IMPROVES THE QUALITY OF THE SURFACES OF THE
MOVING PARTS IN CONTACT IS BASED ON MINERAL OIL AND CONTAINS 0.5-1.5 WT.
PERCENT 0 HYDROXYQUINOLINE AND 0.2 WT PERCENT OLEIC ACID.
FACILITY: UKRAINSKAYA ORDENA TRUDOVOGO KRASNOGO ZNAMENI
SEL'SKOKHOZYAYSTVENNAYA AKADEMIYA.

UNCLASSIFIED

VOZYANOV A.F.

TITLE—RADIOISOTOPE METHOD OF DETERMINATION OF RESIDUAL URINE -U-
UNCLASSIFIED   PROCESSING DATE--17JUL70

AUTHOR—~~VOZYANOV~~., ISHCHENKO, V.P.

COUNTRY OF INFO--USSR

SOURCE—VRACHEBNOYE DELO, 1970, NR 2, PP 45,47

DATE PUBLISHED-------70

SUBJECT AREAS—BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS—URINE, DIAGNOSTIC METHOD, RADIOISOTOPE

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED

PROXY REEL/FRAME--1982/0398

STEP NO--UR/0475/70/000/002/0045/0047

CIRC ACCESSION NO--AP0051915

UNCLASSIFIED

Acc. Nr: *AP0051915*

Ref. Code: *UR0475*

RADIOISOTOPE METHOD OF DETERMINATION OF RESIDUAL URINE

A. F. Vozianov, V. P. Ishchenko (Kiev)

Appearance of residual urine in the urinary bladder evidences decompensation of the detrusor and necessitates urgent intervention. The authors employed a radioactive isotope technique for assessment of the amount of residual urine in 30 patients with different urological diseases. The assessment was performed 1—2 hours following radioisotope renography with hippuran I^{131}. Results were compared with data received at cathetherization. The results coincided in all instances. Simplicity and safety are advantages of this method.

REEL/FRAME
19820398

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1/2   053
UNCLASSIFIED
TITLE--SEMICONDUCTOR PROPERTIES OF PYROLYZED CUPRENE OBTAINED BY A
RADIATION METHOD -U-   PROCESSING DATE--27NOV70

AUTHOR-(03)-TSAPUK, A.K., VOZZHENNIKOV, V.M., VERESHCHINSKIY, I.V.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. B 1970, 12(4), 283-6

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--SEMICONDUCTOR MATERIAL, GAMMA IRRADIATION, ACETYLENE, ARGON,
OXIDATION, ELECTRICAL INSULATION, ELECTRON PARAMAGNETIC RESONANCE, X RAY
ANALYSIS, IR SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1246

CIRC ACCESSION NO--AP0134920
STEP NO--UR/0460/70/012/004/0283/0286

UNCLASSIFIED

CIRC ACCESSION NO--AP0134920   UNCLASSIFIED   PROCESSING DATE--27NOV70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COND. MEASUREMENTS OF CUPRENE (I)
(OBTAINED BY GAMMA IRRADN. OF C SUB2 H SUB2 PLUS AR MIXT. (1:9) WITH 120
MEGARAD) AND ITS MODIFIED PRODUCTS, CONDUCTED AT 220-500DEGREES,
INDICATED THAT PYROLYZED I WAS A SEMICONDUCTOR (E EQUALS 0.55-0.74 EV),
WHEREAS I AND OXIDIZED I WERE INSULATORS. EPR AND IR SPECTRA AS WELL AS
X RAY PATTERNS SUGGESTED THAT COND. WAS NOT DUE TO PARAMAGNETIC CENTERS.
    FACILITY: FIZ.-KHIM. INST. IM. KARPOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

VRACHEV, A. S.

UDC 621.382.3

"Flicker Noise In Transistors (Survey of Experimental Results)"

V sb. Dokl. nauchno-tekhn. konferentsii po itogam nauchno-issled. rabot za 1968-1969 gg. Mosk. energ. in-t, 1970 g. Sekts. Radiotekhnicheskaya. Podsekts. Obshch. radiotekhniki (Report of the Scientific-Technical Conference on the Results of Scientific-Research Work During 1968-1969. Moscow Power Engineering Institute, 1970. Radio Engineering Section. General Radio Engineering), Moscow, 1970, pp 112-124 (from RZh--Elektronika i yeye primeneniye, No 7, July 1970, Abstract No 7B206)

Translation: The basic part of the flicker noise of transistors is determined by recombinations of minority carriers in the depleted region of the emitter junction. The collector noise is connected with the leakage current. It is possible to decrease this part of the flicker noise by appropriate processing of the surface and by a selection of the collector voltage. The noise parameters of a stage substantially depends on agreement with the signal source. The optimum magnitude of the resistance of the signal source is connected with the transistor regime, which makes it possible to determine by the noise characteristics of the

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transistor the resistance of the base and the recombination current. On the basis of a comparison of the noise of a stage with a region of white noise, the conclusion is made that optimization of noise is more favorable to conduction of the 1/f-region which does not display a significant temperature dependence. The upper limit ot the 1/f noise for contemporary junction transistors lies in the limits 1-10 kHz. The value of the lower limit of the 1/f noise is not estab-lished. The frequency dependence of the noise of the majority of transistors conforms to the rule 1/f^Y where Y is close to one. The reason for deviation from this rule is unknown. 7 ill. 21 ref. V.S.

2/2

1/2   025
TITLE--EFFECT OF AGING ON SYNTHESIS OF VITAMINS IN THE RUMEN OF CALVES -U-

UNCLASSIFIED   PROCESSING DATE--04DEC70

AUTHOR-(03)-ZHEREBTSOV, P.I., VRAKIN, V.F., KHODYREV, A.A.

COUNTRY OF INFO--USSR

SOURCE--VESTN. SEL'SKOKHOZ. NAUKI (MOSCOW) 1970, 15(1), 80-7

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--VITAMIN, DAIRY CATTLE, SYNTHETIC FOOD, ORGANIC SYNTHESIS, BIOLOGIC AGING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3009/0172

STEP NO--UR/9091/70/015/001/0080/0087

CIRC ACCESSION NO--AP0139035

UNCLASSIFIED

CIRC ACCESSION NO--AP0139035

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN AN EFFORT TO REPLACE MILK IN
THE NUTRITION OF YOUNG CATTLE BY A SUITABLE IMITATION FEED AN EXPTL.
STUDY USING CALVES FROM 1 TO 6 MONTHS OF AGE WAS CARRIED OUT. THEIR
RUMEN WAS INHABITED BY A MICROFLORA ABLE TO SYNTHESIZE THIAMINE,
RIBOFLAVINE, AND VITAMIN B SUB12. THE SYNTHESIS OF VITAMIN B SUB12 WAS
OBSD. IN CALVES AT THE AGE OF 1 MONTH, THAT OF RIBOFLAVINE IN THOSE AT
THE AGE OF 2-3 MONTHS.   THE SYNTHESIS OF THIAMINE IN THE RUMEN OF THE
EXPTL. ANIMALS SET IN BEGINNING WITH THE 4TH MONTH OF AGE.
FACILITY: MOSK. SEL'SKOKHOZ. AKAD. IM. TIMIRYAZEVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

GROMOVA, A. I., GERASIMOV, V. V., VRALEV, N. YA., ROZENFEL'D, I. L., and
PERSIANTSEVA, V. P.

UDC 620.197.3

"Protection of Perlitic Steels Against Corrosion in the Water of Atomic Power
Installations"

Abstract: The low stability of perlitic steels at 20-80°C in water saturated
with air limits their use in atomic power engineering. This study describes a
test in which steel specimens completely immersed in water saturated with air
and containing 1 g/l hydrazine or 10% dicyclohexylamine at 20 and 80°C were found
to corrode steadily, the corrosion rate being almost two orders of magnitude lower
than that in water without inhibiting additions, where the steel had developed
pits. Dicyclohexylamine (10%) was found to be more effective than hydrazine for
the incomplete immersion of perlitic steel along the water line and above the
water. The 10% solution of dicyclohexylamine is radiation-resistant within the
reactor spectrum up to the integral dose of 10^{15} n/cm^2 (for thermal neutrons).
Tables in the original article show the corrosion of perlitic steels at complete
immersion in desalted water saturated with air under static conditions, corrosion

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USSR

GROMOVA, A. I., et al., Zashchita Metallov, Vol 6, No 2, Mar-Apr 70, pp 227-231

rates of steel at complete immersion in desalted water with hydrazine additions, and corrosion rates of steel in desalted water with various additions, including dicyclohexylamine, hydrazine, octadecylamine, and hexamethyleneamine.

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- 17 -

VRANSKIY, V. K.

Making a diagnosis is a typical process of information processing that can arbitrarily be divided into three parts: 1) gathering information about the patient's condition; 2) processing and evaluating it; 3) making a decision on the basis of the information obtained (N.M. Amosov; N.L. Bykhovskiy et al.).

The accuracy of the diagnosis made is determined by the fullness and reliability of information about the patient's condition. In other words, this information should contain data about the presence as well as severity of specific pathological changes (symptoms) in the patient's organism at the time of the examination and at the earlier stages of development of the disease. The quantity of such symptoms can be arbitrarily great, since, in view of the complex interdependency of numerous vital processes, any devia- tion from normal inevitably leads to onset of a series of disturbances. In practice, it is impossible to take into consideration all of the pathological changes occurring in the organism as the result of some specific disease, therefore in each concrete case a limited number of symptoms is picked out which are encountered the most often and which have the greatest diagnostic value. If possible, one should do without data obtained as a result of traumatic, painful, and lengthy diagnostic procedures.

Historically, in the development of medical diagnostics, one can distinguish three qualitatively different stages.

At the first stage, there is a direct link between the doctor and the patient; they form one information dipole. The doctor's success at this stage is determined entirely by the conditioning of his sensory organs which are capable of fixing the presence of little noticeable pathological changes. At this stage, the diagnostic process suffers from a number of substantial flaws: the most important of which are: a) the data about the patient's condition are superficial, subjective, and difficult to verify; b) the doctor's education and improvement of his knowledge constitute a

- 91 -

USSR

UDC 669.75.472

BULDAKOV, A. A., ROZLOVSKIY, A. A., VRATSKAYA, G. E., DEMINA, Yu. V.

"Resistance of Refractory Materials in Antimony-Salt Solutions"

Elektrokhim. Rafinirovaniye Tyazh. Legkoplavk. Met. iz Rasplavl. Soley.
[Electrochemical Refining of Heavy Low-Melting Metals from Fused Salts --
Collection of Works], Kiev, Nauk. Dumka Press, 1971, pp 169-172, (Translated
from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract No 5 G424 by
the author's).

Translation: The corrosion resistance of structural materials in type SU-2
Sb melt and an equimolar mixture of NaCl + KCl is studied. The following
technical refractories were tested: pure oxides, ceramic construction
materials, oxygen-free compounds, sitalls, and heat-resistant concrete. The
resistance of the materials was determined from the change in weight of a
specimen following repeated immersion in the melt and long holding. Pure
materials of the oxides Al_2O_3, MgO, and ZrO_2 are recommended. 2 Tables.

1/1

USSR

VRBOVA, M. and KHAMAL, K.

UDC   621.373.826:621.317.1

"Method for Measuring the Form of Nanosecond Duration Pulses"

V sb. Nelineyn. protsessy v optike (Nonlinear Processes in Optics — collection of works), Novosibirsk, 1972, vyp.2, pp 67-69 (from RZh-Radiotekhnika. No 11, Nov 72, Abstract No 11 A244)

Translation: The authors propose a method for measuring a third order correlation function. The function makes it possible to determine the shape of a light pulse using the two-dimensional dependence of the intensity of 3-photon fluorescence which takes place in a solution through which pass three plano-parallel beams with equal polarization. The beams are obtained by splitting the output laser beam. A.K.

1/1

USSR

UDC 621.357.7:669.248

DVORSHAK, A., VROBEL', L. V.

"The Problem of Determining the Internal Stress of Nickel Coatings"

Nauchn.-tekhn. Konf. po Probl. "Razrab. mer Zashchity met. ot Korrozii,"
1971. Tezisy Dokl. Vyp. 2. Sekts. 4-5 [Scientific and Technical Conference
on the Problem "Development of Measures for Protection of Metals from
Corrosion," 1971, Theses of Reports, No 2, Sections 4 and 5], Moscow, 1971,
pp 105-111 (Translated from Referativnyy Zhurnal, Khimiya, No 3, 1972, Ab-
stract No 3 L319 by Yu. D. Gamburg).

Translation: A device (briefly described) allowing measurement of the inter-
nal stresses (IS) in extension and compression of a strip or wire cathode is
used to study the IS in shiny Ni precipitates from a Watts bath with added
saccharin and butinediol. These reductions of 0.0045 mol/l saccharin fully
compensates for the tensile IS developing in the presence of 0.02 mol/l bu-
tinediol. The tensile IS are replaced by compressive IS as the temperatures
increase from 20 to 40°. A decrease in tensile IS is observed right up to
the appearance of compressive IS as D_c is increased from 1 to 10 a/dm² (tem-
perature 60°), and an increase in tensile stress is observed as the Ph is
increased to over 5.0.

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USSR   UDC 621.355.8.035.2

NOVAKOVSKIY, A. M., and VROBYSHEVSKIY, V. N.

"Longetivity and Reasons for Failure of the Truck Iron-Nickel Batteries"

Translation: A study was made of the reasons for the failure of systems in Ni-Fe batteries used in trucks. It was shown that the basic reason for the loss of power from the batteries were the following: the passivity of the iron electrode; the formation of surface short circuiting; and the poisoning of the electrode by harmful impurities.

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UDC 614.7:615.28:547.1'118

SPYNU, YE, I., Doctor of Medical Sciences, VROCHINSKIY K. K., ZOR'YEVA, T. D., and MAN'KO, N. N., All Union Scientific Research Institute of Hygiene and Toxicology of Insecticides, Polymers, and Plastics, Kiev

"Comprehensive Approach to the Setting of Standards for New Organophosphorus Pesticides in Environmental Objects"

Abstract: Such organophosphorus compounds as thiophos, methylmercaptophos, carbophos, etc. may enter the human body with food, water, and air. Hence a comprehensive approach to the setting of standards for the pesticides is recommended. It involves establishing the maximum permissible dose for man and the relative share of each medium in the dose, i.e., $D_M = \sum_{i=1}^{3} \cdot D_i$, where D_M is the safe permissible dose for man; D_1 is the amount of pesticide in food; D_2 is the amount of pesticide in water; D_3 is the amount of pesticide in inhaled air; i is the amount in the ith medium. The following steps are taken to set the standard for a given pesticide: (i) toxicological studies and generalization of the results to determine D_M for animals; (ii) determination
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USSR

SPYNU, YE. I., et al., Gigiyena i Sanitariya, No 11, 1972, pp 96-99

of D_M for man based on the comparative sensitivity of man and animals to the compound; (iii) determination of the actual content of the pesticide in various media (K_1, K_2...K_i) and relative share of each medium in D_M for man, calculation of the standard in a medium based on D_M for man and on K_i; (iv) comparison of D_M for man with the total amount of the pesticide that may penetrate the human body after coming into contact with various media. Earlier studies showed that man and animals are equally sensitive to most organophosphorus pesticides after a single exposure. However, man is considerably more sensitive after chronic or prolonged exposure.

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VROCHINSKIY, K. K., Candidate of Medical Sciences, All-Union Scientific
Research Institute of Hygiene and Toxicology

"Toxicological Evaluation of Pesticides in Bodies of Water"

Moscow, Rybnoye Khozyaystvo, No 9, 1971, p 22

Translation: Pesticides have the capability, when they have gotten into
bodies of water, of remaining there for long periods. They move easily from
certain hydrobionts to others along trophic chains, are desorbed from the
silt into the water, and so on.

The persistence of perticides and their ability to circulate under
natural conditions forces toxicologists to develop new methods and improve old
methods of toxicological evaluation and norm-setting for pesticides to protect
bodies of water from these toxic chemicals.

In resolving the question of the possibility of using pesticides to
treat bodies of water, it is necessary to consider, in addition to the gener-
ally accepted criteria, the accumulation, degree, and length of accumulation
of pesticides in hydrobionts and the ability of hydrobionts to detoxify the
pesticide. For a quantitative description of the accumulation process the
formula $K = f/w$ is proposed, where K is the coefficient of accumulation, f is

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VROCHINSKIY, K. K., Rybnoye Khozyaystvo, No 9, 1971, p 22

the concentration of pesticide in the hydrobionts, and w is the concentration
of pesticide in the water.

Research conducted in typical bodies of water with this year's brood of
carp showed that using this coefficient makes it possible to determine the
extent to which the pesticide is dangerous for the body of water. For example,
it turned out that the organochlorine pesticides DDT and polychlorocamphene
accumulate in fish in quantities which exceed their content in water several
hundred- or thousand- fold. With a smaller concentration of pesticide in the
water, pesticide accumulation in fish is relatively greater. The second
pesticide of this same group, Lindane, which has a low degree of accumulation
in hydrobionts, does not represent a major danger to a body of water. The
organophosphorus pesticides fozalon and fthalofos were absorbed by fish in
small quantities.

Study of the duration of pesticide retention in hydrobionts showed that
where fish were transplanted from experimental bodies of water to aquariums
whose water did not contain toxic chemicals, the desorption of different pest-
icides was not identical. For example, DDT was detected in fish over a period
of several months, while fozalon and ftalofos had already disappeared in a
few days.
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